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PRIORITY DOCUMENT

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I, LEANNE MYNOTT, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. PQ 2844 for a patent by NEIL ROBERT SMITH filed on 14 September 1999.

WITNESS my hand this
Eighteenth day of October 2000

LEANNE MYNOTT
TEAM LEADER EXAMINATION
SUPPORT AND SALES

AUSTRALIA

Patents Act 1990

PATENT REQUEST : PROVISIONAL APPLICATION

I, NEIL ROBERT SMITH, being the person identified below as the Applicant, request the grant of a Patent for an invention described in the accompanying provisional specification.

Full application details follow:

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[54] Invention Title: "Apparatus and Method for Prescribing and Manufacturing Orthotic Foot Devices"

[72] Name of Actual Inventor

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Dated this 14th day of September 1999

NEIL ROBERT SMITH.

BY: H R Hodgkinson

Patent Attorney for the Applicant

NEIL ROBERT SMITH

AUSTRALIA
Patents Act 1990

PROVISIONAL SPECIFICATION FOR THE INVENTION ENTITLED:

"APPARATUS AND METHOD FOR PRESCRIBING AND MANUFACTURING ORTHOTIC FOOT DEVICES"

The invention is described in the following statement:-

FIELD OF THE INVENTION

The present invention relates to the prescription and manufacture of orthotic devices for the feet and, in particular, relates to an apparatus and method for taking a corrective weight bearing cast and measurement of a patient's feet in order to form a corrective orthotic foot device such as an orthotic insole.

BACKGROUND TO THE INVENTION

The present invention is an apparatus which makes the process of the prescription and manufacture of custom-made orthotic devices for the feet simpler, less expensive and more accurate. Orthoses for the feet are devices which are inserted into a person's shoes to correct malalignment of the foot, which can be manifested through a variety of physical symptoms, including lower back pain, knee and other joint problems, heel spurs and general foot pain.

Orthotic therapy is defined as the use of an appliance or apparatus to support, align, prevent or correct deformity, or to modify position or motion, and improve the function of the movable parts of the body. The "orthoses" is the actual appliance or device. Orthotic foot devices are the most common form of orthoses and are generally used to correct malalignment of the feet. The device is inserted into the shoe and corrects, or attempts to correct, the malalignment by tilting the foot into its proper position.

Malalignment of the foot will usually mean that the foot leans too much to one side when standing or walking. This can cause symptoms such as back pain, knee problems and leg or general foot pain. The symptoms can be aggravated by age or sporting activities and it is usually only after a person has suffered ongoing chronic pain in their back, leg, knees or feet that they will seek help. Diabetic patients over 60 years of age benefit greatly from feet orthoses. Correctly prescribed, foot orthoses can spread pressure evenly over the foot base and thus reduce the incidence of chronic ulcers.

In some cases, patients will visit a podiatrist to request orthoses after prior consultation with other medical and paramedical practitioners - such as physiotherapists, chiropractors or osteopaths - for a condition they would not have normally associated with the foot. In other cases, the patient will be prescribed orthotic inserts after consulting a podiatrist about general foot or heel pain. In most other instances, the patient will have heard of the benefits of orthotic inserts from satisfied former patients. Orthotic devices are popular with both professional and keen amateur sports people through word of mouth and also through the growth in the number of doctors specialising in sports medicine.

Pre-fabricated, generically sized, orthotic devices are also sold over the counter in pharmacies and by mail order by medical suppliers.

Orthotic devices for the feet have been widely prescribed by podiatrists in Australia since the early 1970s. Prior to this, neither podiatrists nor chiropodists were trained in assessing biomechanical abnormalities of the foot, a prerequisite for the prescribing of orthoses. Orthotic therapy proved successful for many patients and demand increased, mainly through word of mouth.

PRIOR ART

As described above, orthoses for the feet are generally prescribed by podiatrists, who are university-trained foot specialists, using variations of a common known method. Following the diagnosis that orthoses would assist a patient, a podiatrist will take a cast of each foot using a wet plaster bandage. The foot is held in the air by the podiatrist who attempts to replicate the standing position of the foot, while correctly aligning the sub talor joint so that the foot sits in its correctly aligned position. The podiatrist then writes instructions on the cast and further instructions on the prescription form which are then sent to a laboratory. The laboratory will create a positive mould and then hand craft the orthoses using the podiatrist's instructions and their own skill. In such prior art methods it is up to the laboratory technician to guess at how the orthoses should be shaped in order to correct a patient's foot malalignment using the podiatrist's prescription as a guide. This is because the mould taken by the podiatrist is of the patient's feet in an elevated position, not in a standing or "weight bearing" position. The technician must therefore guess at how the corrected weight-bearing

morphology of a patient's foot differs from the non weight bearing morphology provided by the cast and adjust the orthoses as he/she sees fit. As a result, the finished product will be heavily influenced by the technique and level of skill of the technician who is making the orthoses. Accordingly, with such prior art methods of prescribing and manufacturing orthotic foot devices there is significant opportunity for human error at both the casting, prescription and manufacturing stages.

OBJECTS OF THE INVENTION

Accordingly, it is one non-limiting object of the present invention to provide an apparatus and method for prescribing and manufacturing orthotic foot devices which goes at least some way towards overcoming the problems of the prior art apparatus and methods.

It is a further non-limiting object of the present invention to provide an apparatus and method for prescribing and manufacturing orthotic foot devices which reduces or eliminates the subjective adjustments of orthotic technicians, as required in prior art methods of forming orthotic foot devices.

It is another non-limiting object of the present invention to provide an apparatus and method for prescribing and manufacturing orthotic foot devices which involves the taking of a corrective, weight-bearing measurement (or cast) of a patient's foot.

It is an additional non-limiting object of the present invention to provide an apparatus for prescribing orthotic foot devices which is relatively simple and inexpensive to make and which is easy to use.

It is yet another non-limiting object of the present invention to provide an apparatus for prescribing an orthotic foot device, in which the patient can experience the corrective effect of the orthotic foot device whilst it is being prescribed so that he/she can see the effect the orthotic device will have even before it is made up.

It is a further non-limiting object of the present invention to provide an apparatus and method for prescribing and manufacturing orthotic foot devices which goes at least some way towards removing the subjectivity of the podiatrist's and the laboratory technicians' observation which is fundamental to prior art apparative methods.

It is yet another object of the present invention to provide an apparatus and method for prescribing and manufacturing orthotic foot devices which ensures uniform accuracy and allows both the individual patient and the prescribing practitioner to see and feel the results.

It is an additional non-limiting object of the present invention to provide an apparatus and method for prescribing and manufacturing orthotic foot devices which can detect the differences in the function between a patient's left and right foot which can also have a bearing on the upper body.

Further objects and advantages of the present invention will become apparent from the following description.

THE INVENTION

According to one aspect of the present invention there is disclosed an apparatus for use in prescribing and manufacturing orthotic foot devices including:

foot alignment means for adjusting the orientation of at least part of a patient's foot; and
support means for supporting the weight of said patient in a standing position.

Preferably, foot alignment means adjusts the orientation of at least part of a patient's foot in a substantially rolling manner.

Preferably, the foot alignment means includes at least one pair of left and right foot alignment members.

Preferably, said left and right foot alignment members substantially mirror one another in shape and function.

Preferably, each of said left and right foot alignment members includes a foot receiving portion, whose orientation is adjustable by means of adjustment means.

In the preferred embodiment of the present invention the foot receiving portion is only designed to receive the heel portion of a patient's foot. However, the present invention may be readily adapted to include multiple foot receiving portions to receive and allow adjustment of a plurality of parts of a patient's foot. For example, in one embodiment there could be one foot receiving portion per foot which receives only the forefoot. In another embodiment there could be two foot receiving portions per foot, one for the forefoot and the other for the rear foot or heel. Numerous other embodiments and combinations are also possible.

In one form of the present invention the foot receiving means includes an upper surface having a substantially flat middle portion and curved side portions. Preferably, one side portion has a larger radius of curvature than the other so the heel is corrected while keeping the natural shape of a patient's foot. More preferably, the medial side portion has a larger radius of curvature than the lateral side portion. However, numerous variations and modifications of the upper surface of the foot receiving means are possible including but not limited to an upper surface which is completely flat, has an upwardly projecting heel back stop (curved, straight or otherwise), has sides which mirror each other in their radius of curvature etc.

In one embodiment of the present invention said adjustment means includes a toothed portion on an underside surface of the foot receiving means which interacts with a corresponding toothed recess in or on said support means, an inclination arm connected to or integral with said foot receiving means and an adjustment shaft connected to or integral with a distal end of said inclination arm for raising or lowering the inclination arm.

Preferably said adjustment shaft may be manually adjusted to raise or lower the inclination arm. More preferably, the adjustment shaft comprises a first and second threaded bolt. The first bolt preferably being connected at an upper end to the distal end of said inclination arm and being received and retained at a lower end by a turn buckle, said turn buckle also receiving and retaining an upper end of said second threaded bolt whose lower end is

connected to said support means. Preferably, when the turn buckle is turned, the first and second threaded bolts move closer together or further apart, lowering or raising said inclination arm, respectively.

Preferably, said support means includes first and second support columns. More preferably, at least one of said support columns is laterally movable relative to the other. Even more preferably, only one of said support columns is laterally movable relative to the other, by means of wheels, so that said support columns may be spaced apart by an appropriate distance relative to a patient's natural stance.

More preferably, said support means are at least partially rotatable to allow for the different angles and bases of gait of different patients.

Preferably the apparatus of the present invention is used together with a table. More preferably, the table is placed next to said apparatus so that the patient's weight is partially supported by said table and partially supported by said support means. In the preferred embodiment, the patient's fore-feet are supported by the table and the patient's heels are received in the foot receiving means and are supported by the support columns.

Preferably, the apparatus of the present invention is used in conjunction with a mirror and a set of support handles, so that the patient may see their posture corrected as the apparatus is used and so that they may feel secure standing on the support means and table. More preferably the apparatus further includes seating means to allow the patient to take at least some weight off his/her feet while standing on the apparatus.

Even more preferably, the apparatus of the present invention further includes posture marking and measuring means. Preferably such means include a pair of vertical poles on either side of the apparatus which include pens or other markers at intervals which correspond to the height of the patient's ankle, knee, hip etc. Preferably, the position of such pens is adjustable in all three planes. Such a device is used by the podiatrist to assist his/her determination of the degree of malalignment of the patient's posture. When used in conjunction with the foot alignment means of the present invention, the podiatrist and patient can see how correcting the malalignment of the patient's feet can improve or even correct the patient's posture.

In a preferred form of the present invention the apparatus further includes extension means which bridge the gap between the foot receiving means and the table. Preferably, said extension means are made of metal or plastic.

In another preferred form of the present invention, the apparatus further includes foam foot supports which are received by said foot receiving persons and are shaped to reflect a normal, non-corrective inner sole. Preferably such foam foot supports are marked to indicate where the foot should be positioned on the foam.

According to a broad method aspect of the present invention there is disclosed a method of using the apparatus for prescribing and manufacturing orthotic foot devices, substantially as described above, including the following steps:

Step 1: Positioning a patient's feet in or on said foot receiving means (preferably there is a foam support between said feet and said foot receiving means).;

Step 2: Adjusting the orientation of at least part of said patient's foot/feet using said foot alignment means;

Step 3: Taking a corrective weight bearing measurement and/or cast of said patient's foot/feet.

~~Preferably said method further includes the following steps:~~

Step 4: Manufacturing a corrective orthotic foot device such as an orthotic insole based on the measurements taken of the patient's corrected weight bearing foot morphology.

A preferred embodiment of step 3 described above includes the following steps:

Step3A: Having the patient raise his or her first foot;

Step 3B: Applying a plaster bandage or similar substance to the patient's raised foot;

Step 3C: Having the patient replace his/her first foot on the apparatus until the plaster or similar substance has set to form a first plaster cast;

Step 3D: Repeating steps 3A-C with the patient's second foot to form a second plaster cast;

Step 3E: Marking the first and second plaster casts to indicate the correct vertical orientation of the casts; and

Step 3F: Removing first and second plaster casts from said patient's first and second feet.

Preferably, Step 3E is achieved with the aid of marking means which are part of or are connected to the apparatus or table. Such marking means preferably include pen receiving means and pen guiding means which enable the practitioner to use the pen to mark an accurate vertical line on the heel of the plaster casts.

Preferably, said method step 4 further includes the following method steps:

Step 4A: Creating a vertically aligned first positive plaster (or like substance) mould of the patient's corrected weight bearing foot morphology, using said first plaster cast;

Step 4B: Applying polyurethane, thermoplastics, carbonfibre or other suitable material of varying thicknesses to the bottom of said first positive foot mould in order to create a corrective orthotic foot device which reflects the corrected weight bearing morphology of a patient's first foot;

Step 4C: Repeating steps 4A-B to create a second corrective orthotic foot device for said patient's second foot.

The foot can also be scanned b a computer and this information can be downloaded to a milling machine or cad cam machine which can manufacture the orthosis without the

In one embodiment the positive plaster casts are made from Plaster-of-Paris. In another embodiment, a thermosetting, reusable gel is used. Alternative moulding materials are also envisaged.

In an alternative embodiment the corrected weight bearing morphology of the patients foot may be scanned by a computer. This information is then downloaded to a milling machine or cad cam machine which can manufacture the orthosis without the aid of a positive cast.

From the above description it will be appreciated that the apparatus of the present invention is a precision measuring device which allows the podiatrist to take moulds of the patient's feet while the patient is standing, and thus bearing their own weight. This means that the ankle joint can be accurately aligned using a metal gauge that is preferably part of the device. The patient is preferably measured in front of a mirror while the apparatus is used to correctly align the patient's feet. Patients can therefore immediately see that their feet - and hence their legs and the rest of their body - are correctly aligned. Usually patients will feel an immediate sense of "standing straight" and they are able to voice any comfort concerns to the podiatrist as they emerge.

Because the moulds are taken while the feet are in the correct position, rather than being held in the air with the position "replicated", guesswork and human error are effectively removed from the process. Unskilled labour can subsequently be used in the laboratory where the orthoses are made, and the chances of the patient being satisfied with the end product are increased. Production time is also decreased and there is less likelihood a patient will have to return orthoses to be remade because the patient is dissatisfied with the devices.

A preferred but non-limiting embodiment of the present invention will now be described with reference to the drawings in which

Figure 1: is a rear view of the preferred embodiment of the apparatus of the present invention;

Figure 2: is a side view of the preferred embodiment of the apparatus of the present invention;

Figure 3: is the same view as figure 2 but showing the apparatus in use;

Figure 4: is a close-up rear view of the preferred embodiment of the apparatus of the present invention in use;

Figure 5: is a simplified "birds-eye view" of the apparatus of the present invention in use;

Figure 6: is a side view of the right foot receiving means and right inclination arm of the preferred embodiment of the present invention;

Figure 7: is an underside view of the alternative embodiment of the right foot receiving means and right inclination arm of the present invention.

Figure 8: is a right side view of the foam foot support of the preferred embodiment of the present invention; and

Figure 9: is a left side view of the foam foot support of the preferred embodiment of the present invention.

Figure 10: is a side view of an alternative embodiment of the right foot receiving means and right inclination arm of the present invention.

Figure 11: is an underside view of the right foot receiving means and right inclination arm of the preferred embodiment of the present invention;

The foot foams will come in 3 different sizes (small) 3,4,5, (medium) 6,7,8, (large) 9,10,11,12...(*the numbers are shoe sizes).

Referring firstly to figure 1, there is shown an apparatus for prescribing orthotic foot devices (1) including foot alignment means (2) and support means (3). The foot alignment means (2) of the preferred embodiment includes left and right foot receiving means (4,5), left and right inclination arms (6,7) and left and right adjustment shafts (8,9). As can be seen in figure 1 the left foot receiving means (4), the left inclination arm (6) and left adjustment shaft (8) substantially mirrors the right foot receiving means (5), right inclination arm (7) and right adjustment shaft (9). Whilst varying sizes of apparatus (1) are possible, the preferred embodiment is approximately sixteen inches tall.

As shown in figures 1, 6 and 7, the left foot receiving means (4) of the preferred embodiment is integral with the left foot inclination arm (6) and includes a pair of toothed tracks (11) on the underside surface (12) thereof. These toothed tracks (11) interact with a corresponding toothed recess (not shown) in a left support column (14).

As shown in figure 6, the preferred embodiment of the right foot receiving means (5) of the present invention includes an upper surface (48) having a substantially flat middle portion (49), first (50) and second (51) curved side portions, a back portion (54), a curved front edge (55) and a curved back edge (56). Preferably, the first curved side portion (50) has a larger radius of curvature than the second (51) curved side portion to reflect the natural shape of a patient's right foot(36). However, numerous variations and modifications of the upper surface (48) of the right foot receiving means (5) are possible including but not limited to an

upper surface (48) which is completely flat, or an upper surface which has sides which mirror each other in their radius of curvature etc. Preferably, the distance between the front (55) and back (56) edges on the medial side of the right foot receiving means (5) is greater than the corresponding distance on the lateral side of the right foot receiving means (5), as illustrated. The back portion (54) of this embodiment helps to stop the rear of the foam foot support (30) from squashing out of place. Similar comments apply to the shape of the preferred embodiment of the left foot receiving means (4).

An alternative embodiment of the right foot receiving means is shown in Figures 10 and 11. In this embodiment the right foot receiving mean(s) does not include a back portion (54) and its front (55) and back (56) edges are substantially parallel.

As shown in figures 1 and 4, as the left adjustment shaft (8) is lengthen or shortened, the left inclination arm (6) is raised or lowered, respectively, and the inclination of the left foot receiving means (4) is correspondingly adjusted.

In the preferred embodiment illustrated in figure 1, the left adjustment shaft (8) includes a left upper threaded bolt (16) and a left lower threaded bolt (17). An upper end (18) of said left upper threaded bolt (16) is connected to a distal end (19) of the left inclination arm (6). The lower end (20) of the left upper threaded bolt (16) is received and retained by a turn buckle (21). An upper end (22) of the left lower threaded bolt (17) is also received and retained by the turn buckle (21). The lower end (23) of the left lower threaded bolt (17) is connected to a base (24) of said support means (3).

In the preferred embodiment illustrated in figures 1 and 4, the right adjustment shaft (8) includes a right upper threaded bolt (42) and a right lower threaded bolt (43). An upper end (44) of said right upper threaded bolt (42) is connected to a distal end (52) of the right inclination arm (6). The lower end (45) of the right upper threaded bolt (42) is received and retained by a turn buckle (21). An upper end (46) of the right lower threaded bolt (43) is also received and retained by the turn buckle (21). The lower end (47) of the right lower threaded bolt (43) is connected to a base (24) of said support means (3).

In the preferred embodiment, the left (8) and right (9) adjustment shafts are lengthened or shortened by rotating the turn buckles (21) clockwise or anti-clockwise.

As shown in figures 1 and 2, the support means (3) of the preferred embodiment of the present invention includes a left support column (14) and a right support column (15). In this preferred embodiment, the right support column (15) may be moved relative to the left support column (14) by means of a plurality of rollers (25).

As shown in figure 3, the preferred embodiment of the apparatus (1) of the present invention is used in conjunction with a table (26) which includes a set of hand rails (27) and a mirror (28). As illustrated in figures 3, 4, 5, 8 and 7, the apparatus of the present invention is preferably used in conjunction with a left foot foam support (29) and a right foot foam support (30). In addition, the preferred embodiment further includes meal or plastic extensions (53) which support the left and right foot foam supports (29,30) and bridge the gap between the support columns (14,15) and the table (26).

The preferred embodiment of the apparatus (1) of the present invention is preferably used in accordance with the following preferred method, as illustrated in figures 3, 4 and 5. The patient (31) stands on the apparatus (1), placing the heel (33) of his left foot (32) on the left foot foam support (29) which sits in the left foot receiving means (4). The fore-foot (34) of the patient's left foot (32) is supported by the front section (35) of the left foot foam support (29) which rests on the extension (53) on the table (26). Similarly the heel (37) of the patient's right foot (36) is placed on the rear section (38) of the right foot foam support (30) which sits in the right foot receiving means (5). The fore-foot (40) of the patient's right foot (36) rests upon the front section (41) of the right foot foam support (30) which also rests on the extension (53) on the table (26). The podiatrist (not shown) adjusts the position of the patient's feet (32,36) so that they are correctly and centrally positioned on the apparatus (1). Preferably, the foam supports (29,30) are marked to show the correct foot placement position. More preferably, the foam supports (29,30) come in a variety of sizes to suit different sizes of patient's feet. Even more preferably the foam supports come in three different sizes, namely small (for shoe sizes 3, 4 and 5), medium (for shoe sizes 6, 7 and 8) and large (for shoe sizes 9 and above).

While the patient (31) is standing on the foot alignment means (2), he can see himself in the mirror (28) and hold onto the hand rail (27) for support. The podiatrist (not shown) then moves the right support column (15) until the left and right support columns (14,15) are an appropriate distance apart. The podiatrist then rotates the left and right support columns (14,15) until they are positioned correctly relieve to the patient's (31) naural angle and base of gait.

At this point the left and right inclination arms (5,6) are horizontal so that the patient (31) is standing on a flat (foam padded) surface with his/her feet (32,36) in their resting calcaneal stance position ("R.C.S.P."). The podiatrist then rotates the turn buckle (21) which adjusts the length of the right adjustment shaft (9) which alters the inclination of the right inclination arm (7) and right foot receiving means (5). The inclination of the right foot receiving means (5) is altered until the patient and podiatrist can see that the malalignment of the patient's right foot (36) has been temporarily corrected. The same process is repeated with the left adjustment shaft (8), left inclination arm (6) and left foot receiving means (4) until the patient's left foot (32) is in its corrected orientation.

The podiatrist then asks the patient (31) to lift his right foot (36) whereupon the podiatrist applies a plaster bandage (now shown) to the right foot (36). The patient (31) then places his right foot (36) back on the right foot foam support (30) until the right foot plaster bandage sets into a right foot cast (not shown). The podiatrist then asks the patient to lift his left foot (32) and a similar process is followed to achieve a left foot cast. It will be appreciated that, because the foot alignment means (2) have been used to correct the malalignment of the patient's feet, the left and right casts reflect the corrected weight bearing foot morphology of a patient's left (32) and right (36) feet respectively.

Whilst the measurement of the patient's feet is preferably achieved by taking a plaster cast of the patient's left (32) and right (36) feet respectively, alternative methods of measuring the patient's corrected, weight-bearing foot morphology are envisaged. For example, the apparatus of the present invention could be used in conjunction with computerised laser or optical imaging apparatus or other known method of measuring the morphology of a patient's foot including but not limited to using thermoplastics applied to the underside of the patient's feet. The advantage of the present invention being that the apparatus has manipulated the

patient's foot into its corrected position so that a weight-bearing measurement thereof may be made.

The preferred embodiment of the present invention is preferably used in accordance with a preferred method which includes the following steps:

Step 1: Positioning a patient's feet (32,36) in or on said foot receiving means (4,5) (preferably there is a foam support (29,30) between the said feet (32,36) and said foot receiving means (4,5);

Step 2: Adjusting the orientation of at least part of said patient's foot/feet (32,36) using said foot alignment means (2);

Step 3: Taking a corrective weight bearing measurement and/or cast of said patient's foot/feet (4,5).

Preferably said method further includes the following steps:

Step 4: Manufacturing a corrective orthotic foot device such as an orthotic insole based on the measurements taken of the patient's corrected weight bearing foot morphology.

A preferred embodiment of step 3 described above includes the following steps:

Step3A: Having the patient raise his or her first foot (36);

Step 3B: Applying a plaster bandage or similar substance to the patient's raised foot (36);

Step 3C: Having the patient replace his/her first foot (36) on the apparatus (1) until the plaster or similar substance has set to form a first plaster cast (not shown);

Step 3D: Repeating steps 3A-C with the patient's second foot (32) to form a second plaster cast (not shown);

Step 3E: Marking the first and second plaster casts to indicate the correct vertical orientation of the casts; and

Step 3F: Removing first and second plaster casts from said patient's first (36) and second (32) feet.

Preferably, Step 3E is achieved with the aid of marking means (not shown) which are part of or are connected to the apparatus (1) or table (26). Such marking means preferably include pen receiving means and pen guiding means which enable the practitioner to use the pen to mark an accurate vertical line on the plaster casts.

Preferably, said method step 4 further includes the following method steps:

Step 4A: Creating a vertically aligned first positive plaster (or like substance) mould of the patient's corrected weight bearing foot morphology, using said first plaster cast;

Step 4B: Applying polyurethane, thermoplastics, carbonfibre or other suitable material of varying thicknesses to the bottom of said first positive foot mould in order to create a corrective orthotic foot device which reflects the corrected weight bearing morphology of a patient's first foot;

Step 4C: Repeating steps 4A-B to create a second corrective orthotic foot device for said patient's second foot.

In the preferred embodiment the positive plaster casts are made from Plaster-of-Paris. In another embodiment, a thermosetting, reusable gel is used. Alternative moulding materials are also envisaged.

Preferably said corrective orthotic foot devices include indented portions to allow for lesions on the patients' feet.

It will be appreciated from the above description that in making the orthotic insole, according to the present method, the orthotic technician does not need to add or remove sections of the positive foot mould or insole in order to estimate the weight bearing morphology of the patient's foot. As such, the guesswork is taken out of the manufacture of orthotic insoles and consistency and accuracy are greatly increased.

It will be appreciated by those skilled in the art that numerous modifications and variations may be made to the invention as broadly described herein, without departing from the overall spirit or scope of the invention.

Dated this 14th day of September 1999.

NEIL ROBERT SMITH

BY:

HR HODGKINSON & CO.

Patent Attorneys for the Applicant

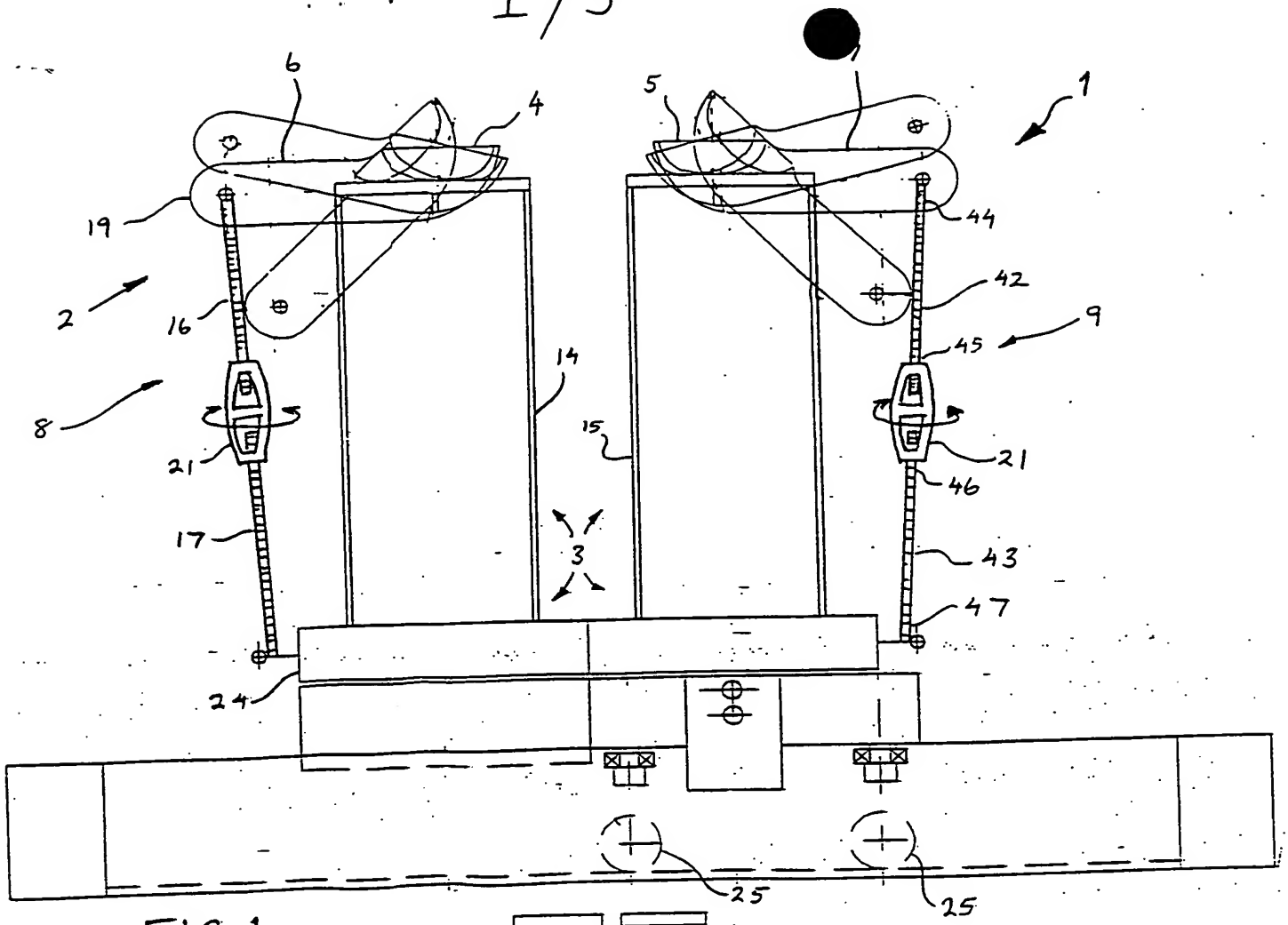

FIG. 1

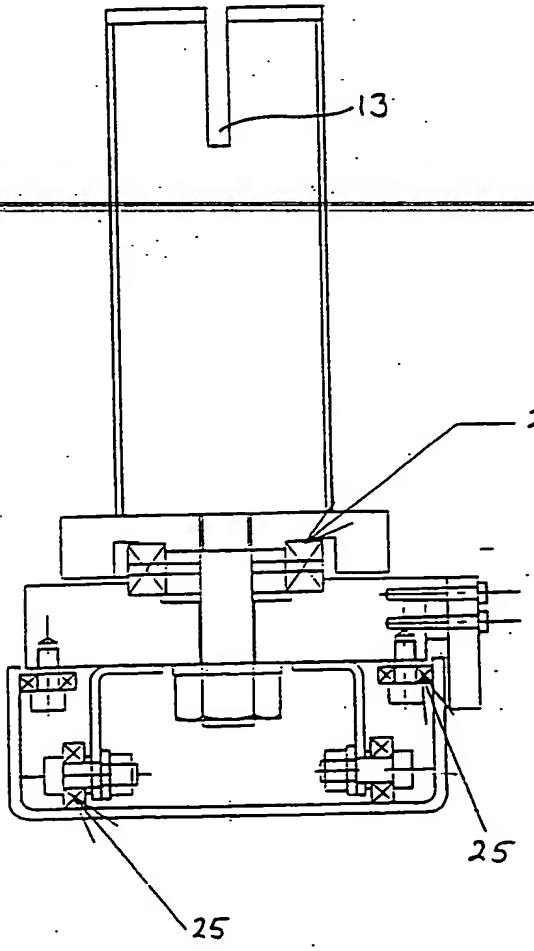

FIG. 2

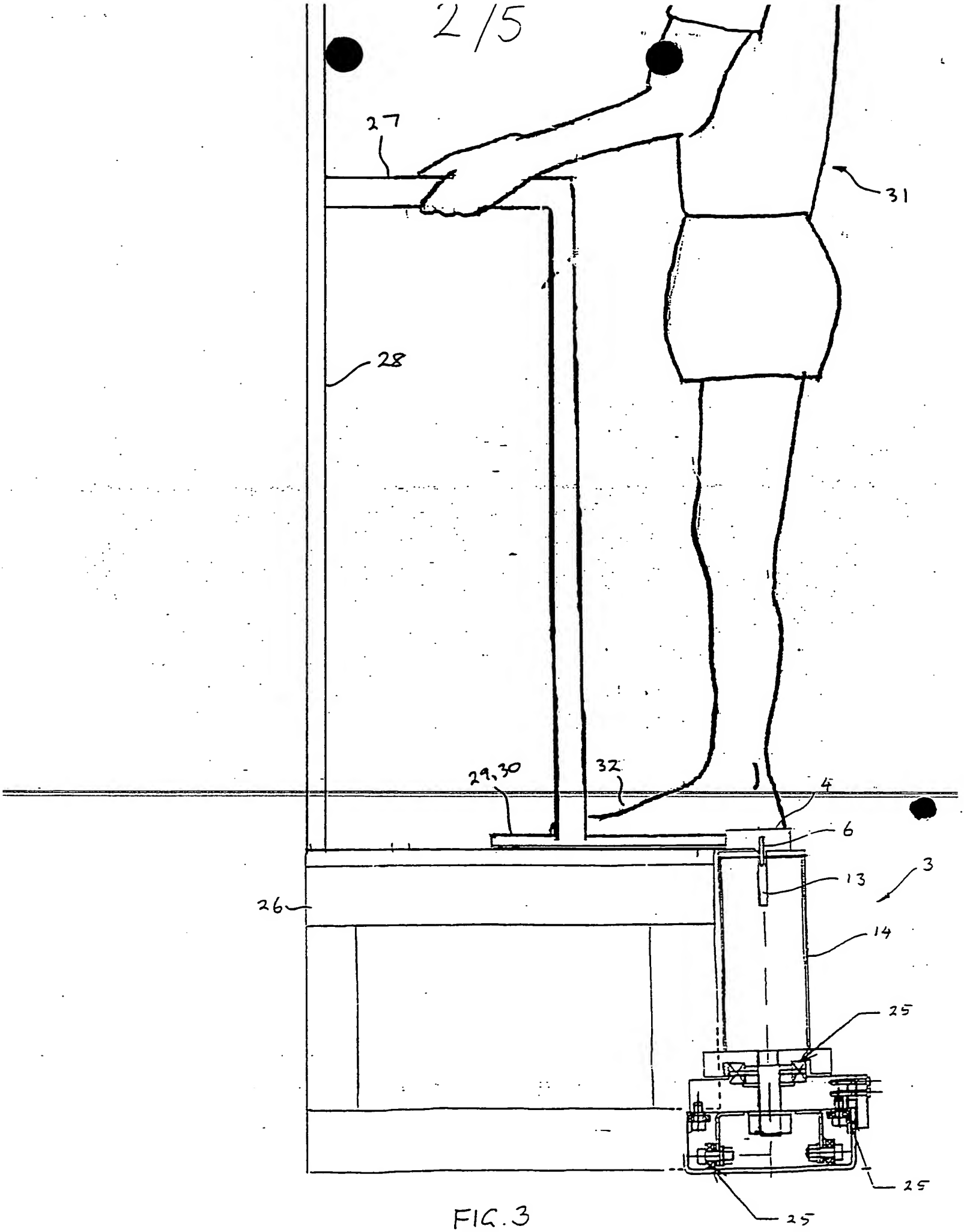

FIG. 3

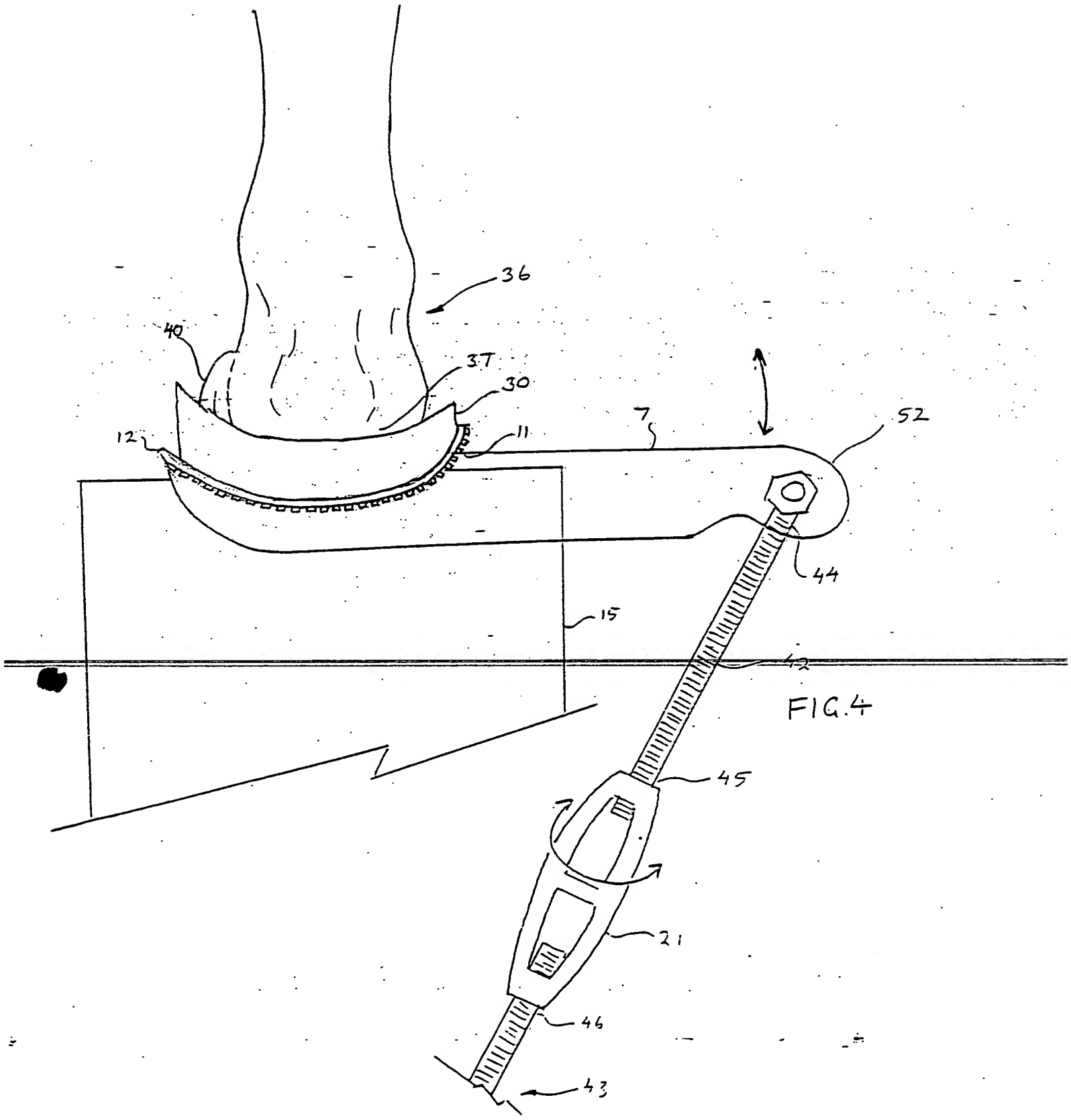

FIG.4

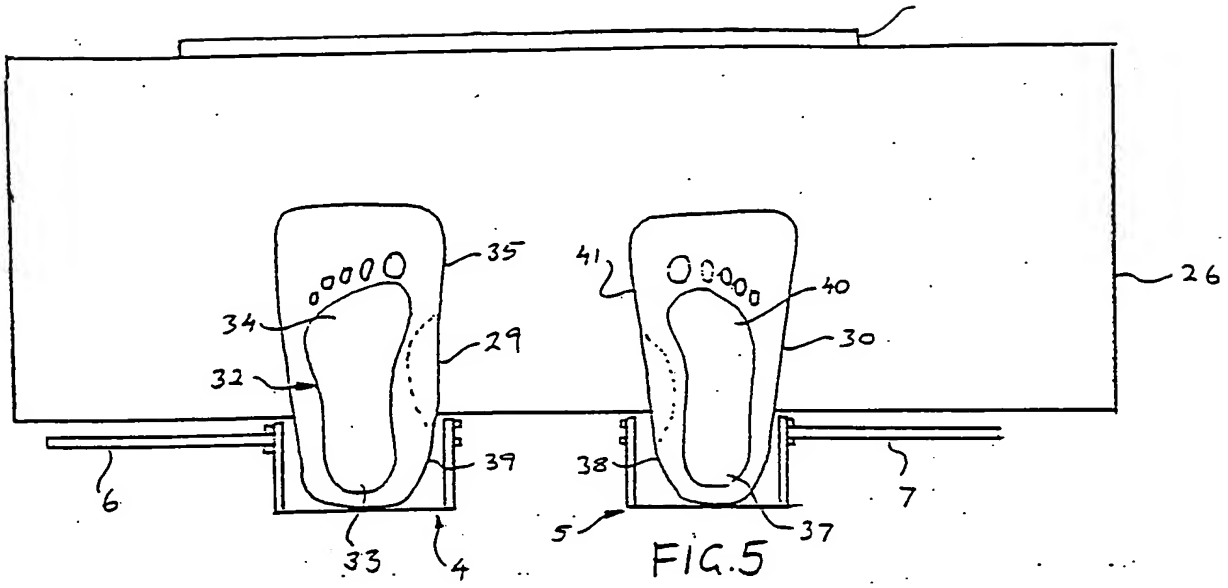

FIG.5

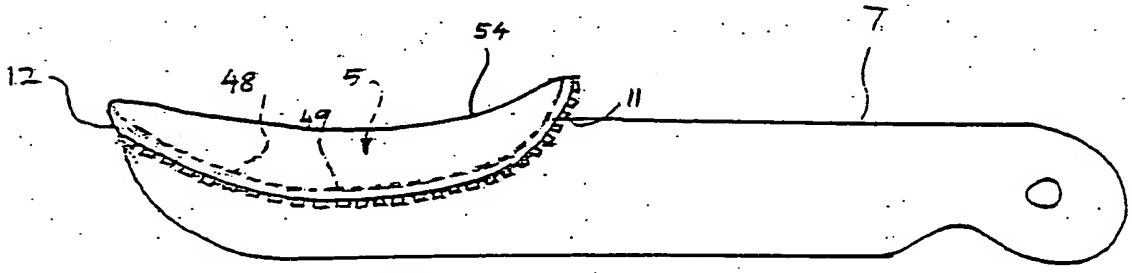

FIG. 6

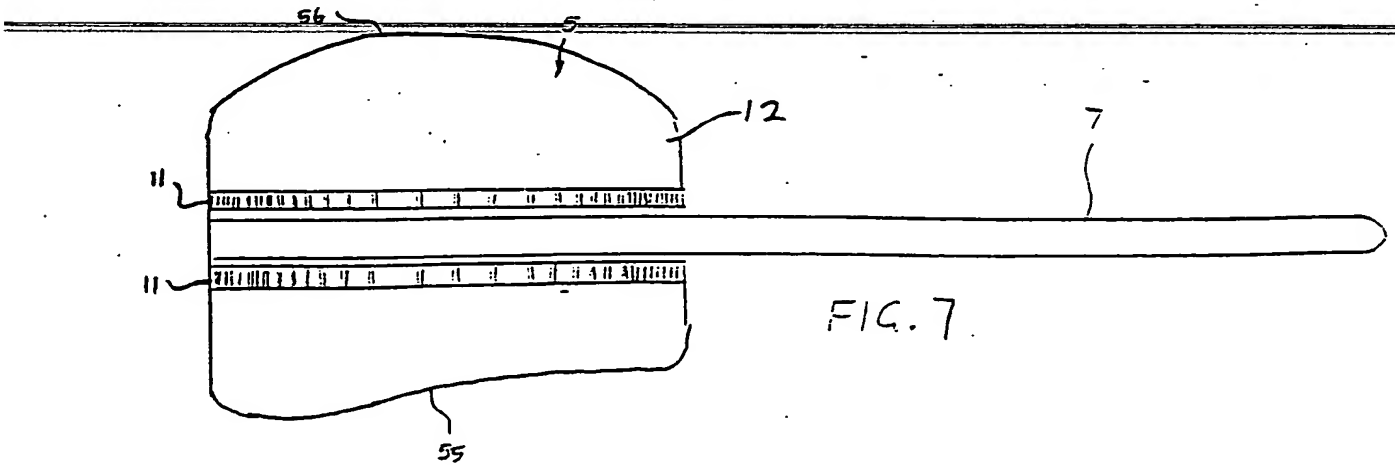

FIG. 7

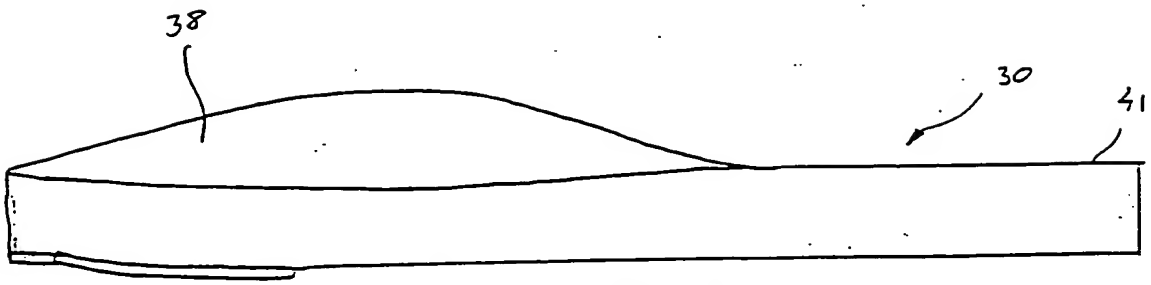

FIG. 8

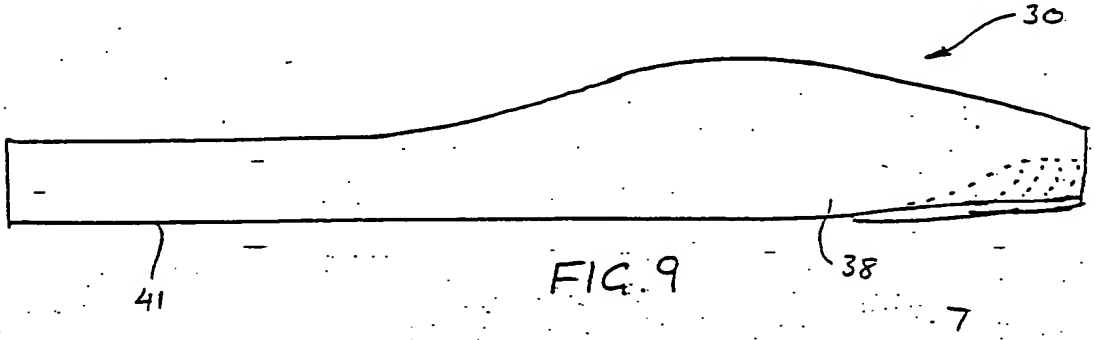

FIG. 9

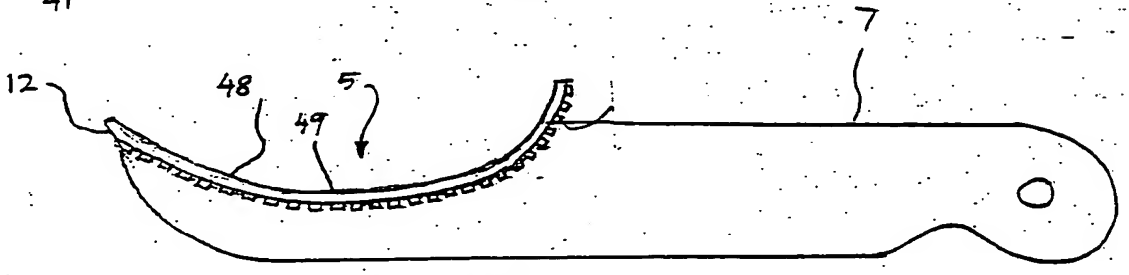

FIG. 10

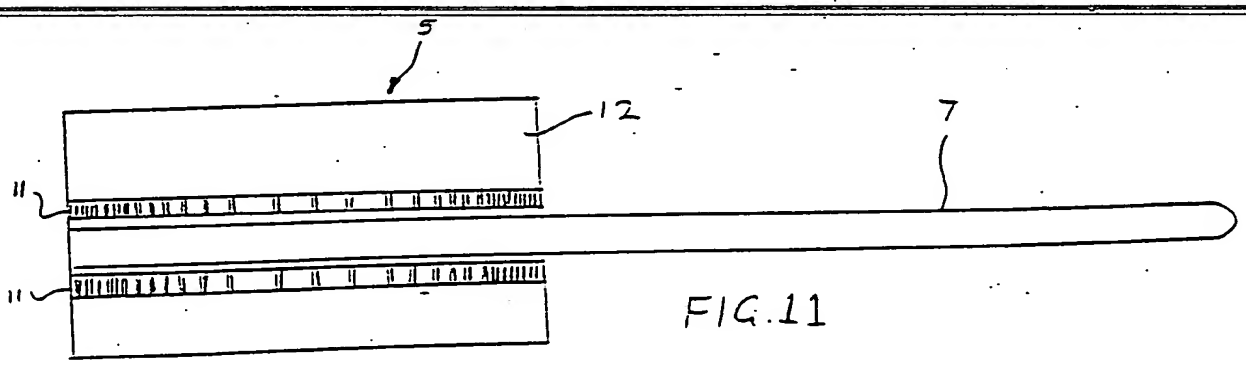

FIG. 11